

MARINE REVIEW.

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No. 9.

Cost of Running a Modern Lake Steamer.

Mr. George H. Ely of Cleveland was one of the delegates from the American Society of Civil Engineers to the Fifth International Congress on Inland Navigation, held in Paris last month. Mr. Ely read a paper on the Great Lakes of North America, which has not as yet been printed here, but which is a most interesting document. The following statement, dealing in detail with the operating expenses and earnings of one of the Minnesota Steamship Company's steel steamers, the Manola, during the season of 1890, appears as an appendix to the paper:

MINNESOTA STEAMSHIP COMPANY STEEL STEAMER MANOLA.

Length, keel.....	292' 5½"
Length, over all.....	508' 5½"
Breadth	40'
Depth, moulded	24' 6"
Size of cylinders.....	24", 38" and 61".
Stroke.....	42"
Two boilers of 14' 0" diameter, 12' 6" long.	
One wheel of 14' 0" diameter, 16' 6" lead.	
Size water bottom 3' 4" deep, divided into six compartments, independent of collision bulkhead.	
Capacity water bottom, 800 tons.	
Estimated horsepower, 2,000.	

STATEMENT OF OPERATIONS STEAMER MANOLA, SEASON OF 1890.

Receipts.	Amount.	Per ton freight carried.
Freights.....	\$93,738 25	\$1.317
Towing .....	.....	.....
Sundry sources .....	.....	.....
Gross earnings.....	93,738 25	1.317
Disbursements.	Amount.	Per ton freight carried.
Fuel	\$14,427 14	\$0.203
Oil.....	863 82	0.012
Machinery and boiler repairs and supplies	1,182 54	0.017
Cabin supplies and provisions.....	3,304 98	0.046
Handling cargoes.....	16,111 75	0.226
Hull repairs.....	149 34	0.002
Towing.....	744 00	0.011
Chandlery.....	1,328 37	0.018
Sundry sources	886 24	0.012
Labor.....	10,021 37	0.141
Outfit.....	623 44	0.009
Insurance	5,471 21	0.077
Total expenses.....	\$55,114 20	\$0.774
Net earnings.....	\$38,624 05	\$0.543
Gross earnings per day	\$ 422 24	
Operating expenses per day	248 25	
Net earnings per day	173 98	
Percentage of operations to earnings	58 79	
Earnings per ton per mile.....	0.00078	
Operating expenses per ton per mile.....	0.00046	
Net earnings per ton per mile.....	0.00032	
Earnings per mile travelled.....	1.853	
Operating expenses per mile travelled.....	1.090	
Net earnings per mile travelled.....	0.763	
Total miles travelled.....	50,584	
Average miles per day	227½	
Tons freight carried	71,170.690 tons	
Tons freight carried one mile	3,600,078.861 tons	
Average speed per hour light.....	12.72 miles	
Average speed per hour loaded.....	11.85 miles	
General average speed per hour	12.25 miles	
Total tons fuel used.....	5,528 tons	
Average tons fuel used per trip.....	184.553 tons	
Average amount of fuel per mile light.....	209 lbs.	
Average amount of fuel per mile loaded.....	226 lbs.	
General average amount fuel per mile	218 lbs.	
Average fuel per ton per mile	1½ oz.	
Number of trips	30	
Average size cargo	2,295 ½ tons	
Average draft water, Sault canal.....	14' 7" 14' 9"	

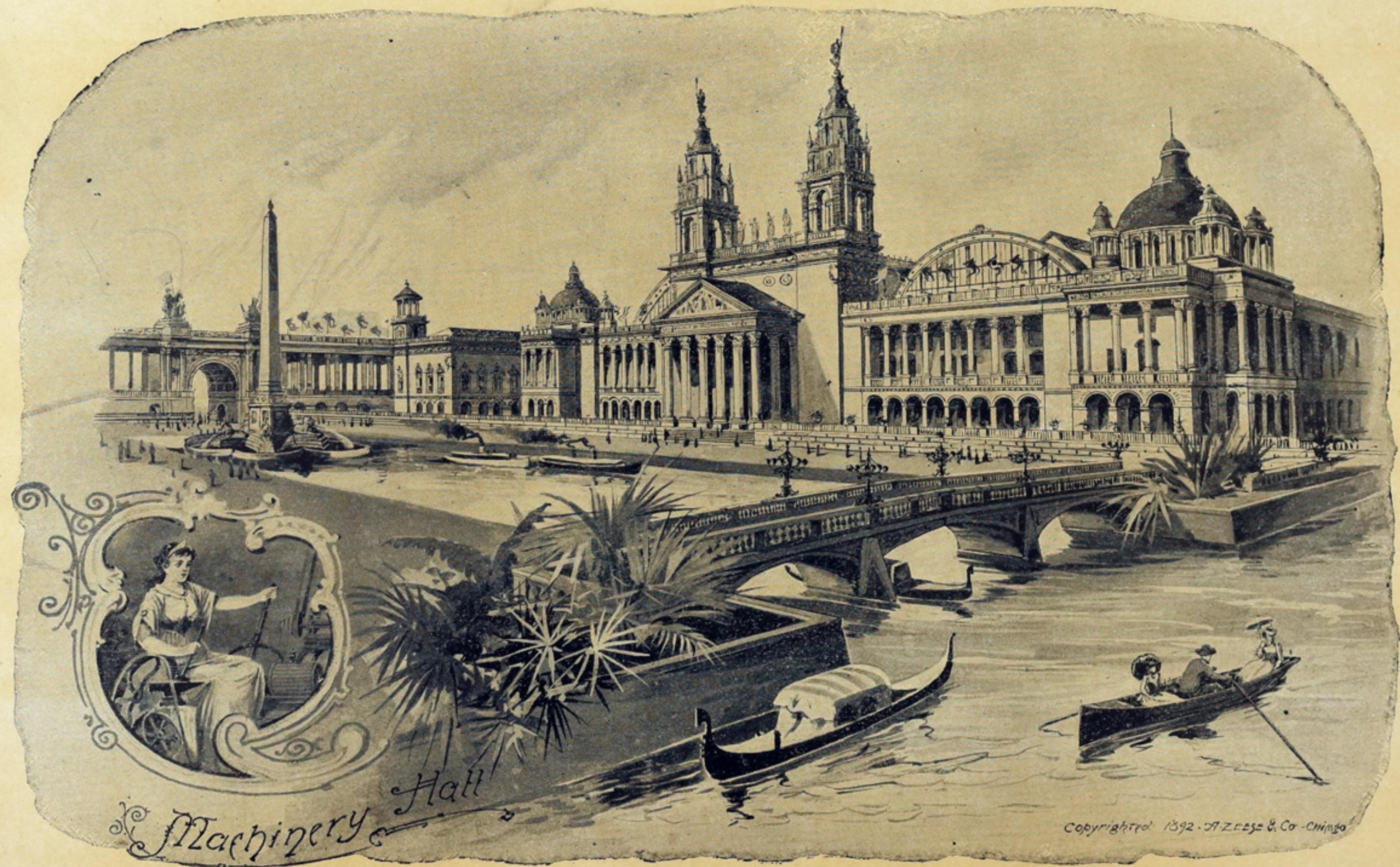
Average time loading	7½ hours
Average time unloading.....	12 hours
Average time handling cargo.....	19½ hours
Average tons loaded per hour.....	306.244 tons
Average tons unloaded per hour.....	191.712 tons
Average tons handled per hour.....	235 ½ tons
Actual time sailing	175 days
Actual time in port.....	47 days
Actual time in commission	222 days
Per cent. of time sailing.....	78.83
Per cent. of time in port	21.17
Average number crew each trip.....	23
Average wages crew each trip	\$334 05
Average length of trip.....	7 day 9½ hours
Average mileage per trip	1,686

Lloyds Classification of the Whalebacks.

When William Doxford & Son, ship builders of Sunderland, Eng., some time ago proposed to build a steamer of new structural features, embodying some of the principles of the American whaleback, opposition to the plans was shown at Lloyds and it was generally understood that such vessels would not be registered by the big British institution of underwriters. The question is again brought up through the formation of an English company, the Whaleback Steamship Company, which will shortly begin the construction of vessels under rights secured through the American Steel Barge Company. It would seem, however, that the whaleback company will go on with the building of vessels, even though Lloyds should absolutely refuse to register any of them. A correspondent in Fairplay of London, who is probably one of the stockholders in the new English company, says in discussing the question: "The effect of this indisposition of Lloyds to thoroughly go into the new systems brought forward will finally be to strengthen other classification societies, which do not object to deal more seriously with these matters than Lloyds seem to have done hitherto. Ship building is one of our most important industries, and unless our ship builders keep well ahead of other nations by cheapness of production and large carrying capacity, foreign competition will not be long in taking a considerable share of our ship building work away. The Germans and French have already built fast trans-Atlantic liners equalling the best productions of the Clyde, and they have the advantage of cheap labor, which will tell in time. Our only chance is to improve the type of vessels we build from year to year by taking advantage of all the sound features which inventors may bring forward."

Case of Personal Injuries.

In the United States circuit court of appeals, fourth circuit, a case was heard a short time ago, in which a stevedore sought damages for personal injuries. The stevedore was driving a winch on the steamship Serapis at Baltimore. The cogwheels were uncovered, and the workman, while looking at the hatch back of him, put his hand between the wheels where it was crushed. The winch had no covering over the cogwheels, with which winches are now customarily made, but was in good order of its kind. The stevedore had worked at it for several hours before the accident and knew all about it. The mate had warned him to be careful. The court dismissed the libel, holding that the stevedore's negligence was the sole cause of the accident, and ruling that where a workman is employed to do certain work with a machine which he fully understands, though it may not be of the newest pattern, and may require more care than newer patterns, but nevertheless is in perfect order of its kind, he takes the risk of all accidents which may befall him in its use.



Machinery Hall

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Supplement to MARINE REVIEW, Cleveland, O.

MACHINERY HALL—WORLD'S COLUMBIAN EXPOSITION.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 13 Western Union Building, CHICAGO, ILL., Sept. 1. }

Grain is pouring into Chicago at a great rate, and some of it must go out faster than it has been moving all this season. Many vesselmen believe that the demand for tonnage will improve early in September. Prospects of heavy shipments early in the month no doubt had much to do with the maintenance of rates during the dull times of the past week. Vessel owners appear determined to maintain 2½ cents as the wheat rate to Buffalo at the expense of ore rates, as several big boats are being daily sent away after an ineffectual effort to secure cargoes here. In this marine men have apparently been wise, for when the improvement comes the start will be at a good figure. It is just about as easy to boost rates from 2½ to 3½ cents as it is from 1 to 2 cents. With a good start, it may be that there will be good money in the grain trade for a couple of months after all. There is a string to this prediction, for nearly every forecast of grain rates has gone adrift this season. Just when everything was ready for big business the unexpected has happened, and freights became dead.

The City of Venice, one of James Davidson's "Big Three" got away with 102,000 bushels of wheat. This, Capt. Egan says, is the largest cargo ever carried on a wooden boat on the lakes. It is certainly the best showing yet made by any of Davidson's steamers.

Capt. J. L. Higgin has good reasons to feel abused at the course of the Society for the Prevention of Smoke. His smoke preventing device was identically the same as that placed on locomotives, which railroad men say will so abate smoke that the society will fall down and call them blessed. The tug men have not the pull that the railroad companies have. The officers of the society who have been drawing large salaries, had to make a show of prosecuting somebody, and the tug men were selected as the fellows without friends. It is always safe to prosecute a man without friends, as a terrific warfare can be waged without any back shot. Some newspapers are ever careful to select some such victim, and as the marine has fewer friends in Chicago than any other line of industry, it is generally selected as the first point of attack in every "reform." It is immaterial whether it is the smoke nuisance, the bridge nuisance or any other nuisance. If there was a possible chance of starting in on the marine as a cholera preventive it would be done. I have watched locomotives for several days, and as a matter of fact they are smoking more atrociously than any tug on the river. Yet the Society for the Prevention of Smoke accepts the bunko devices of the railroad men, and are hypocritical on anything that tug men propose.

There was much disappointment among the Chicago marine men at the unpardonable course of the Anchor line in sending the new straightback Mahoning to Milwaukee instead of this city on her maiden trip. George Boyden, the well known shipper, had agreed to the expenses of a proper reception to the new boat. Mr. Boyden was greatly disappointed when the Anchor Line so arranged it that the Mahoning was not to come to Chicago at all. The course of general manager Evans was generally condemned by people who expected to have a good time on the trip out to meet the Mahoning. It is likely Mr. Evans knew nothing of the plans of the junketers, but it will be a long while before his great offense can be forgiven.

The Seamen's Union is going to have a float in the Labor Day parade representing Columbus' flagship. On the back of the ship will be the transparency. "This boat needs no police protection." The thing ought to be one of the biggest hits of the parade. It is a paradox, however, why the Seamen's Union, which disclaims so vehemently responsibility for attacks on non-Union crews, should be so touchy about police protection. There seems to be a screw loose somewhere.

Lloyds Supplement for September.

The names of eleven new boats are contained in the September supplement of the Inland Lloyds Register. Three of them are metal boats. The aggregate tonnage of the eleven vessels is 8,656 net tons and the total valuation \$726,000. Following is the list:

Name.	Port of hall.	Owner.	Net tonnage.	Valuation.
City of Genoa.....	Bay City, Mich.....	James Davidson.....	1,773	\$135,000
City of Naples.....	Bay City, Mich.....	James Davidson.....	1,771	135,000
Buena.....	Chicago.....	Buena Park Club.....		5,500
Essen.....	Cleveland.....	Pickands, Mather & Co.....		16,000
Pathfinder.....	Cleveland.....	Huron Barge Co.....	2,000	180,000
Wyandotte.....	Detroit.....	Clark Estate.....	† 450	75,000
Grace.....	Buffalo.....	J. E. Tribble.....	7	3,500
Maxwell A.....	Alpena, Mich.....	Alpena Fish Co.....	47	12,000
J. D. McFadden.....	Duluth.....	Joseph Magee.....	8	4,000
A. E. Shores, Jr.....	Milwaukee.....	Starke.....	† 900	60,000
*Sagamore.....	Cleveland.....	Huron Barge Co.....	† 1,700	109,000
			8,656	\$726,000

*Barge, all others steam. †Estimated.

Sailors' Superstitions.

It is said that much dissatisfaction has been expressed in the navy over the selection of a married lady to christen a war ship almost ready for launching at Bath, Me. Maritime tradi-

tions declare that the ceremony of christening a ship should be performed by a young maiden if it is to carry with it happy auguries for the future career of the craft. About such matters old salts are particular, and young sailors inherit the beliefs that have come down from tarry generations that have long rested in Davy Jones' locker. Despite the great changes in ships, sailors continue to be pretty much the same as they used to be. They may not dance hornpipes; they certainly do not drink grog in the old drunken fashion, but the belief in certain superstitions is still the test of orthodoxy with them. The sailor of today thinks it a bad sign if a cat deserts the ship; and there is almost a panic if the rats follow suit. A shark persistently following the ship makes the sailors nervous with apprehension of disaster to come. Sailors are and always were a superstitious lot. It is related that the Roman admiral Appius Claudius, not he who wronged Virginius, but a much later character, on being informed by the Augurs, on the eve of an engagement, that the sacred chickens would not eat said, "Let 'em drink, then," and had them all thrown overboard, after which he attacked the Carthaginian fleet and got a terrible thrashing. Doubtless the Roman sailors attributed his defeat to his mad defiance of the auguries, and believed that had he waited until the sacred chickens had recovered their appetite there would have been another glorious victory to inscribe on the annals of Rome. The sailors of modern days would say much the same thing of a modern admiral whose defeat should follow some such daring defiance of the auguries. Marryat, Chamier, and Cooper have made us familiar with the superstitions of the sailors of their time. Their time is not far off after all, and many modern captains could, if they would, relate instances of the force of omens and superstitions. The experience of one captain, well-known in Boston, and still in his active prime, is a case in point. He says that a few years ago he commanded a vessel plying between Boston and one of the West India islands. One very dark night the ship was becalmed. A silence that was oppressive brooded over the sea. The captain had retired for the night and was sound asleep when the mate woke him, reporting that strange sounds were heard on the sea off the port bow. On reaching the deck the captain found the crew gathered in a group forward listening intently. They said they had heard something that sounded at first like a shout and afterwards like singing, that it came out of the darkness on the port bow and appeared at first to be close aboard and then to pass off to a distance. Seeing a veteran Swede who had sailed every sea listening more intently than the other sailors the captain asked him what he thought the sound was. With a smile at the supposed necessity of the question the Swede answered, "It was a mermaid singing." "Don't talk nonsense!" was the captain's reply. You are the oldest man on board." "But," retorted the Swede, "it was a mermaid. They sing ahead of ships at night until a boat is sent after them, and (with a shudder) the boat never returns." Just then the sound was repeated. To the captain's ears it was like a faint far distant hail. A boat was lowered, lanterns were hoisted in the rigging, and a blue light burned, the captain's supposition being that a raft or boatload of exhausted shipwrecked people were somewhere in the darkness. The boat put off, made a long search, and came back, having encountered neither mermaids nor shipwrecked mariners. The mystery of the strange sounds remained forever unexplained to everyone but the Swedish sailor, who, despite the boat's safe return, said he knew it was a mermaid all the time. Probably it was one of those strange, weird sounds so frequently heard at night at sea, which inspire in the hearers an awe, a creeping sensation, very favorable to acquiescence in the superstition of the fore-castle and quarter-deck. Superstition makes its way aft somewhat refined and weakened when it reaches the wardroom, but still superstition. Nor does steam affect it. There is a steamer coming regularly to this port which has a bad name with sailors. The cats have left her at the wharf, and other cats were stolen by the sailors and were kept on board with great difficulty until she sailed. On another occasion the rats ran squeaking up from below and took refuge in the piling of the dock; and everything short of shipwreck and mutiny has happened to the vessel, whose crew is kept together only by the exertions and persuasions of the officers.

As evidence that superstition is found on the quarter-deck, it may be mentioned that the Army and Navy Journal, which reflects its sentiment, editorially protested against reviving in the new navy the names of ships associated with misfortune. By all means let the comeliest of young maidens be selected to christen new cruisers.—*Boston Transcript*.

Big Loads From Two Harbors.

During Sunday and Monday of this week seven big boats taking ore from Two Harbors loaded 19,354 gross or 21,678 net tons. Several other smaller boats loaded at the same port on these days, but the following list is given to show the wonderful advancement being made in Lake Superior cargoes on an extreme draft of 14 feet 9 inches:

Vessels.	Date of loading.	Gross tons.	Pounds.
Maritana.....	Aug. 28	3,236	360
Marina.....	Aug. 28	2,346	960
Onoko.....	Aug. 28	2,506	560
* Sagamore.....	Aug. 28	3,025	1,000
Mariposa.....	Aug. 29	3,083	1,080
Mariska.....	Aug. 29	2,395	200
W. H. Gilbert.....	Aug. 29	2,762	120
Total.....		19,354	2,040

* Whaleback tow barge. All others steel steamers.

In all cases the weights shown above are gross weights from which the deduction for moisture in the ore has not been made. Most interesting in the list are the cargoes of the new steamers of the Minnesota line, the Maritana and Mariposa. The Maritana's cargo of 3,236 gross tons is the largest ever taken from Lake Superior. Her draft was 14 feet 6 inches forward and 14 feet 10 inches aft, or an average of 14 feet 8 inches. It is strange that the Mariposa, which is a duplicate of the other boat in every respect and was drawing 1 inch more aft, took on only 3,083 gross tons, but the owners are expecting that this may be explained when the boat is unloaded, or when she takes on another cargo. The Mariposa loaded soft ore and the Maritana hard, but this would hardly account for the difference in cargoes. It is thought, however, that it will be found that the Mariposa's water bottom was not entirely clear when taking on cargo. The whaleback tow barge Sagamore, also controlled in the Cleveland office of the Minnesota Iron Company, makes a very good showing with a cargo of 3,025 gross tons. She is making her first trip in tow of the wooden steamer Ketchum, as the whaleback steamer Pathfinder, with which she will tow in future, is not as yet ready for service.

The steamer W. H. Gilcher also delivered a large cargo a few days ago, 2,674 gross tons, from Two Harbors.

Lake Freight Matters.

Within the past few days several representatives of new mining properties on the Mesaba range have been in Cleveland making preparations for the sale of their ore. In most cases the mining companies that have taken up leases on the new range are not very wealthy, and they are looking for advance money from the established sales agencies to whom they will give the business of handling the ore. The money will be forthcoming where it is needed, and everybody in the ore business is now satisfied that the Mesaba will ship next season a large quantity of ore, probably 1,500,000 tons. This new output does not mean, however, a certainty of increased production on the whole. It means that some of the older companies on other ranges will be compelled to quit. Without the new range there is capacity at present in the Lake Superior region for 10,000,000 tons of ore and a demand for not more than 7,000,000 to 8,000,000 tons. It would seem certain then that mines producing low grade ores at the highest cost per ton must drop out of the business, on account of a general readjustment on a lower range of prices.

The ore shippers are giving a great deal of attention to this outlook for the future, but they are nevertheless still bringing down ore to the extent that docks are being crowded. The low range of freights has caused contracts to be made at \$1 from Ashland and Two Harbors to Lake Erie ports covering probably 35,000 tons of ore to be delivered during September. On one contract of this kind, the first that was made, three boats owned in Erie get \$1.10. Vessel owners making these contracts figure

that they are providing for a dull period of a few weeks before the fall grain begins to move. In this they may be right, but the condition of the market following these transactions was, if any, a little stronger. On the strength of these contracts shippers tried to force the rate from the head of the lakes below \$1 but they were unsuccessful and the market has settled at 70 cents from Escanaba, 90 cents from Marquette and \$1 from Ashland and Two Harbors to Ohio ports. In trying to put the rates down shippers had figured that there is thrown upon the market, by reason of the expiration of ore carrying contracts this month, vessels that have a capacity for about 300,000 tons during the remainder of the season. A great deal of this tonnage will, however, find employment from the shippers who have had it under contract. The strength shown in grain, notwithstanding the restriction in the ore movement, is also a factor on the side of the vessel owner. There is now in Chicago 5,733,309 bushels more wheat and corn than on the corresponding date a year ago. Receipts at Chicago have been very heavy, and new grain in good condition has begun to arrive in Duluth at the rate of about twenty-five cars a day. The northwestern grain will not, of course, begin moving for two weeks or more yet, but there is every reason to believe that shipments will be heavy. Coal freights show no immediate signs of recovery, although shipments have improved a little over last week. Rates on soft coal are 40 cents to the head of Lake Superior, 50 and 55 cents to Milwaukee, 50 cents to Manitowoc, 45 cents to Escanaba and 60 cents to Racine and Sheboygan.

Volume of Trade Involved in the Canal Tolls Question.

No definite figures on last year's Lake Superior commerce between ports in Canada and the United States, in both American and Canadian vessels, have been prepared, from which a reliable estimate might be formed of the amount of tolls to be collected at the Sault canal for the remainder of the season, as a result of President Harrison's recent proclamation. The treasury department is deficient in this regard, on account of existing customs regulations on the lakes, but it is thought that the amount will not be above \$15,000. This is not a very heavy burthen, but it will fall mainly on Canadian shipping. As far as can be learned, the Canadian government has not given out its intention of reimbursing Canadian interests to the amount of tolls collected at the Sault, but it is expected that a fund will be provided in some way to meet the loss.

How to Raise Drowned Bodies.

A great deal of unnecessary labor and expense is wasted in recovering bodies from the water. Sometimes divers are secured, grappling irons are rigged, or tugs are hired to agitate the water near where the person is supposed to have drowned. Last year while fishing on the south shore of Lake Superior a wealthy gentleman was drowned and several days were spent in securing the services of a tug. And yet it is claimed by those who have tried it that a strong fish line, several hooks and a sinker are all that is necessary to bring a body to the surface. This has been proven in a number of instances where the use of such ample means have been recommended by Capt. Dunham, the Chicago tug owner. He always recommends it when one of his tugs are sent for to find a body. The line should be long enough to reach to the bottom, and the hooks, if more than one is used should be attached to the line by other lines about a foot long. The sinker should be heavy enough to keep the line taut and should be placed near the end of the long line. In dragging with this device, the person holding the end in the boat should have some line coiled up so that when the hooks catch in the body or the clothes the motion of the boat will not tear them loose. When grappled the line will be found strong enough to raise the body without difficulty, because of the pressure of the water. Bodies that have been caught by the tip of the finger have been raised in this way. The plan is so simple that there will be some hesitancy in trying it, where other means are at hand.

Realizing the Decline in Canal Facilities.

During the past two years the New York legislature has made no provision for improvements of the state canals, and as a result attention is directed in leading commercial publications to the decline in canal traffic and the demand for a radical improvement of the Erie canal. Discussion of the subject pertains to proposed improvements by the state, but the arguments produced are all favorable to the big project begun in the last session of congress for a 20-foot ship-canal to the seaboard. Regarding neglect of the canals by the state Bradstreets reproduces the following from recent articles on the subject:

"During the years 1885 to 1889, inclusive, legislative appropriations were made for needed improvements, but in 1890 the improvement bill failed in the assembly after passing the senate, and in 1891 the bill, after passing both senate and assembly, was vetoed by the governor. The Canal Improvement Union has taken up this subject, and is reported to be arranging for a convention to consider the further improvement of the canals, and to perfect plans and a system of organization for carrying the same into effect. The last report on the subject by the New York state engineer says that improvements now in progress on the state canals will give a uniform depth of 7 feet of water throughout, and it is also intended to double the length of the locks, as the bulk of the important traffic is carried in 'double-header' boats, consisting of two boats connected together—a method which secures a large economy in transportation. There is also a steady increase in the use of steam canal boats, which are propelled by screws, and generally push one consort in front and tow two others behind. The increase in the length of the locks will greatly facilitate the traffic both by the 'double-header' boats and steamboats with consorts. The present canal boats have a capacity of about 250 tons. The freight on wheat from Buffalo to New York in 1891 averaged $3\frac{1}{2}$ cents per bushel, at which rate there was little profit, an actual loss if less than seven trips were made. The state engineer also stated that if the policy of maintaining the efficiency of the Erie canal is to be continued the full depth of water must be secured, the locks lengthened, and the canal maintained in proper condition in order to facilitate and encourage traffic.

"Some notion of the prominence of the canals as a means to forward our great food crops may be gained from the mere statement that during the seven seasons of navigation from 1884 to 1891, inclusive, receipts of grain at New York were 588,000,000 bushels, of which 286,000,000 bushels came through via the canal, 266,000,000 bushels by the railways, and 6,000,000 bushels by river and coastwise, showing that the canals brought 14,000,000 bushels more to New York within the period named than all the trunk line railways. It is also worth noting that in the face of the enormous increase in the power of locomotives, capacity of freight cars and length of trains within the past thirty-six years, with the single exception of lock lengthening and the ordinary repairs no improvements or extensions have been made to the canals since 1856.

"Of the advantage of the canal to the whole public—if any necessity remains for going into that question at this late day—the following from a letter made by the president of the New York Board of Trade and Transportation covers the point: 'The nearer the rail rate comes to the canal rate just in that proportion will the advantage that the canals give our state over competing routes become less. The railways of this state, great as they are, can not alone hold, unaided by the canal, and do not now hold the trade when the canal is closed, as against the railways running to the competing ports of Philadelphia, Baltimore and Boston. The statistics of recent years show that when navigation is closed (about five months in the year) New York railways are powerless against rival routes, and also that when the canal is open and directing the current of trade toward New York harbor we easily outstrip competitors.' The statistics referred to have been compiled and are given in the following table, showing the effect of the canals upon the grain trade of the port of New York:

	Receipts of grain at—	
	New York, bushels.	Phila., Balt. and Boston, bushels.
1887—Canal navigation open.....	74,563,509	33,118,979
1887—Canal navigation closed.....	22,945,633	25,688,918
1889—Canal navigation open.....	61,165,204	39,944,794
1889—Canal navigation closed.....	24,348,329	22,160,026

To Offset the Canal Tax.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Sept. 1.—The latest information from Ottawa indicates that the government's intention concerning the canal tolls will not be altered. Calculations show that the new United States tax will put an extra burthen upon carriers to the extent of \$35,000 per annum. As the busiest half of the season is over, it is safe to say that the tolls this year will not exceed \$20,000, hence a movement is now on foot to relieve carriers of this comparatively small sum. The government, it is stated on good authority, will not recoup, therefore forwarders have taken the matter up. The nature of the scheme they have on hand has not been made public, but whatever it may be it will certainly place carriers in precisely the same position they occupied prior to the imposing of the "Soo" tolls. The probabilities are that in a week or ten days the new order of things will be in operation, and the question of canal tolls as an international problem will be a thing of the past for 1892 at all events.

M. B. Mills of Detroit is here with his steam yacht Grace, which cost \$100,000. It is the finest yacht that has touched here this season. One of the novelties on board is an incandescent light enclosed in the compass, which very few boatmen have had confidence enough to use. Another is two mechanical birds which sing beautifully on "the button" being pressed. A third is a fan which is operated by electricity. A hot spell is therefore not felt on board.

Evidently the government has taken no stock in the allegations that the dry dock rates are exorbitant, as it is announced that for this season at least the present scale will remain. The minister states that it is desired to get the interest on the money invested out of the dock. This could not be accomplished were the rates reduced.

The steamer Columbian is still hard and fast in the Cedar rapids. Piers are being built near her, so that the current will not interfere with the operations. It is expected that she will be afloat in a week or ten days.

Washington Matters.

Special Correspondence to the MARINE REVIEW.

WASHINGTON, D. C., Sept. 1.—Count Alfred Detrich, chief constructor of the German Navy, has been in this city during the past week, for the purpose of making a study of the American naval establishments. He has been extended the courtesies of the navy department, and will also take in the navy yard at Norfolk before his return. He will probably inspect other American shipyards and ships, and be likely to visit Cleveland before returning to Germany. He is a distinguished looking man of middle age, broad shouldered, with a heavy iron grey beard, and has been the recipient of marked attention while here.

The plans for the new ships authorized by congress are being pushed at rapidly as possible by the bureau of construction of the navy department. It is the desire of the department to advertise for bids for their construction by Nov. 2, and with this end in view leaves of absence to draftsmen and other employes of the bureau have been suspended until the plans have been completed.

Commander George F. Ide has been ordered to duty as a member of the board of inspection of merchant vessels at New York. Passed Assistant Surgeon Ira N. Hollis has been ordered to duty in the bureau of steam engineering, Washington, D. C. Commander T. A. Luons has been detached from duty as a member of the board of inspection of merchant vessels at New York and ordered to duty at the navy yard, Washington, D. C., for ordinance instruction.

Official Numbers and Tonnage.

The bureau of navigation, E. C. O'Brien commissioner, assigned official numbers to and passed upon the tonnage of the following lake vessels during the week ending Saturday, August 27: Steam—Cascade, Buffalo, built at same port, 77.28 tons gross, 38.64 net, No. 126,913; E. G. Crosby, Grand Haven, Mich., built at same port, 84.82 tons gross, 42.41 net, No. 136,320; E. C. Shafer, Buffalo, built at same port, 24.03 tons gross, 18.45 net, No. 136,319; Louise M., Milwaukee, built at Sheboygan, Wis., 18.72 tons gross, 9.36 net, No. 141,224; William D., Cleveland, built at Ashtabula, O., 51.34 tons gross, 25.67 net, No. 81,392.

Trade Notes.

The Almy Water Tube Boiler Company of Providence, R. I., is constructing for the steam yacht Avenel a patent sectional water tube boiler of the double tube type, having two furnaces, and withstanding a pressure of 225 pounds of steam. This boiler will be capable of furnishing steam to a quadruple engine to develop 645 indicated horse power.

The Sheriffs Manufacturing Company of Milwaukee has placed a new wheel on the steamer City of Traverse, which has increased her speed a mile an hour on the same steam and cut-off.

Record of Speed and Big Cargoes.

[Masters or owners are invited to report improvements on this list.]

Iron ore: Maritana, Minnesota Steamship Company of Cleveland 4,260 gross, or 4,771 net tons, Escanaba to South Chicago; Maryland, Inter-Ocean Transportation Company of Milwaukee, 3,663 gross, or 4,103 net tons, Escanaba to South Chicago, draft 17 feet 4 inches; Western Reserve, Peter Minch of Cleveland, 3,314 gross, or 3,717 net tons, Escanaba to Ashtabula.

Grain: E. C. Pope, Eddy Bros. of Bay City, 125,730 bushels of corn, Chicago to Buffalo, draft 14 feet 8 inches; Western Reserve, Peter Minch of Cleveland, 112,431 bushels of wheat, Chicago to Buffalo; W. H. Gilcher, J. C. Gilchrist of Cleveland, 114,982 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company.....	\$100 00	\$.....	\$ 70 00
Champion Iron Company.....	25 00	.....	58 00
Chandler Iron Company.....	25 00	44 00	.....
Jackson Iron Company.....	25 00	.....	90 00
Lake Superior Iron Company.....	25 00	.....	43 00
Minnesota Iron Company.....	100 00	73 50	77 00
Pittsburgh & Lake Angeline Iron Co.....	25 00	.....	.....
Republic Iron Company.....	25 00	.....	13 25
Ashland.....	25 00	.....	.....
Section Thirty-three.....	25 00	.....	7 50
Brotherton.....	25 00	2 00	2 50
Iron Belt.....	25 00	2 25	2 50
Aurora.....	25 00	8 25	.....

Shipments of iron ore from Two Harbors up to and including Wednesday, August 24, aggregated 718,014 gross tons, of which 413,492 tons were from the Chandler, 301,178 tons from the Minnesota, 2,265 tons from the Pioneer and 1,079 tons from the Zenith mine. On the same date shipments from Ashland aggregated 1,425,747 gross tons, divided among the different mines as follows: Ashland 119,561 tons, Aurora 203,535, Colby No. 2, 37,584, Rand 15,536, Tilden 154,200, Taylor 14,640, Globe-Ashland 5,309, Iron Belt 100,526, Montreal, south vein, 1,151, Montreal, north vein, 22,954, Palms 38,369, Section 33, south vein, 2,362, Section 33, north vein, 3,133, Anvil 1,696, Brotherton 68,281, Comet 20,572, Carey 22,324, Newport 71,705, Imperial 3,451, Norrie 276,254, East Norrie 133,866, Odanah 2,249, Pabst 34,615, Eureka 5,084, Sunday Lake 40,116, Windsor 16,663.

Nobody who understands anything about the ore business believes that the Carnegie's or anybody else has contracted for large quantities of Bessemer ore from the Mesaba, to be delivered aboard vessel at Lake Superior ports next season at \$2 a ton. Admitted that there was a possibility of mining the ore and delivering it at a shipping port at the price named, the producer would certainly not sell it for \$1 a ton less than might readily be obtained for it.

At this writing shipments from the Chandler mine are a little more than 500,000 tons. When this mine shipped 373,000 tons last year its record was considered wonderful. It is understood that not quite all of the Chandler's output has been sold, but the unsold portion of the ore is small and there is every assurance that the mine will make a better showing than any property in the Lake Superior region this season.

A report regarding the mine of the Little Mesaba Iron Company, one of the most promising of the new properties, says that one pit is 60 feet deep and bottomed in soapstone. Another is the same depth and 15 feet in ore. Three others are down to the ledge and bottomed in ore. Samples from the bottom of the deepest pit run 60 per cent. in iron and .003 in phosphorus. The ore is very similar to that of the Chandler.

J. T. Jones, superintendent of the Hamilton mine, Menominee range, is also looking after the development work of the Hamilton Ore Company on the Mesaba. He is employing about 100 men in stripping the Biwabik with the aid of a steam shovel taken from the Hamilton, and says that in 1894 this Mesaba range mine will ship more ore than any mine in the world.

Mesaba Ore and Lake Vessel Business.

There is no doubt now that development of the new Mesaba iron range of Minnesota has reached a stage where it will be necessary for lake vessel owners to keep a close account of everything pertaining to sales of iron ore during the coming fall and winter. Managers of all the mines on the older Lake Superior ranges realize the importance of railway and dock construction work preparatory to shipments from the Mesaba, and their representatives have quite recently visited the new district, some of them spending two or three weeks of investigation, with a view to handling the ore, or for the purpose of ascertaining the probable extent of shipments and their effect on the market next winter.

Lower prices for all Lake superior ores and a general readjustment of the business seem inevitable as a result of present operations on the new range. No better evidence of this conclusion is needed than the fact that stocks of the strongest companies on the older ranges are more depressed from day to day. This depression is certainly not due altogether to a surplus of production already coming from these older mines. It is due very largely to the prospect of the Mesaba producing good ore in large quantities much cheaper by means of surface work than it can now be mined through underground workings of the older ranges. It will be admitted that next to the Minnesota the Lake Superior Iron Company, with its vessels, mineral lands and costly mining equipment is one of the strongest concerns in the Lake Superior region, and yet at this writing investors are asked to make a bid of \$40 per share for stock in the company. All through 1890 and 1891 this stock sold at an average of about \$68. Shares in other companies are equally depressed. Reference is made to the Lake Superior for the reason that it is a regular dividend payer and has been increasing its ownership in floating property and mining equipment right along each year.

It is evident then that the mining companies already in the business of producing ore are keeping a close watch on the new range, and vessel owners are warranted from present indications in doing likewise. Although it would not appear at first thought that the new mines with the prospects of increased shipments would be other than favorable to the transportation interests, new conditions will arise demanding attention. It is certain that leases have been made on the Mesaba requiring a minimum output next season of 1,500,000 tons of ore. Whether these leases will be fully carried out or not remains to be seen, but all reports from experienced mining men of Cleveland, as well as mine superintendents from the Marquette and Menominee ranges, confirm first reports of good ore showing up in almost unlimited quantities. The Duluth & Iron Range Railway will be ready in 30 days to make first shipments over its Two Harbors docks from a branch constructed to the range, and new docks at West Superior will be ready to receive some ore before Oct. 1, so that sample cargoes of the ore at least will be brought to Lake Erie before the close of the present season.

When it was said some years ago that there was 13,000,000 tons of ore in the depths of the big Chapin mine it was difficult to find anyone who would believe the statement. Mining men who are more competent to judge now than the projectors of the Chapin were at that time claim that there is 20,000,000 tons of ore in sight at the Biwabik the leading Mesaba property. The explorers of this new range have gone into a wilderness; a country so rough that it was impossible to secure the use of even a derrick or a pump in their work, and now that capital has been secured for the building of railways and the transportation of machinery to the lands where ore has been found in great quantities on the surface, it is not unreasonable to expect most wonderful results from the new district.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, } PROPRIETORS.
F. M. BARTON, }
HOMER J. CARR, Associate Editor and Manager Chicago Office,
Western Union Building, 110 LaSalle Street.

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SUBSCRIPTION—\$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,600 vessels, measuring 1,154,870.38 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of vessels of 1,000 to 2,500 tons on the lakes on June 30, 1891, was 310 and their aggregate gross tonnage 512,787.58; in all other parts of the country the number of this class of vessels was, on the same date, 213 and their gross tonnage 319,750.84. The classification of the entire lake fleet is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,592	756,751.53
Sailing vessels.....	1,243	325,131.06
Canal boats.....	703	72,515.42
Barges.....	62	20,472.37
Total.....	3,600	1,154,870.38

Tonnage built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	No. of boats.	Net Tonnage.
1887.....	152	56,488.32
1888.....	222	101,102.87
1889.....	225	107,080.30
1890.....	218	108,515.00
1891.....	204	111,856.45
Total.....	1,021	485,042.94

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 228 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014. Number of boats through St. Mary's Falls canal in 1891, 225 days of navigation, 10,191; tonnage, net registered, 8,400,685. Number of boats through Suez canal during 1891, full year, 4,207; tonnage, net registered, 8,698,777.

Entered at Cleveland Post Office as Second-class Mail Matter.

THE much discussed Frye bill—the senate measure in which the recommendations of the late International Marine Conference are considered—contains a section, thirty-four, providing that no seaman whose visual power is below half normal, or who is red or green color blind, shall stand lookout on board any vessel of the United States. The board of supervising inspectors of steam vessels in its last annual report declares that the enactment of this section of the bill into law would be exceedingly arbitrary, unnecessary, and unjust. The inspectors say that they can find “no excuse whatever for attempting to deprive any of our people of employment as seamen simply and solely because of some physical defect which in no way will disqualify them for service.” Lake vessel owners have expressed their emphatic disapproval of many features of this senate bill 1755, and the protests of shipping interests succeeded in defeating it as a whole, but we fail to understand the position of the inspectors, some of whom are masters, on this particular section. The testimony of a lookout often carries more weight than that of a master before the courts, on account of the responsibility of the master, and it is found too often that there is conflicting evidence from lookouts regarding the color of lights. The current issue of the Maritime Register discusses at length the utterances of the inspectors on this subject and administers some very severe criticism to the board. The Register says: “No one will attempt to put obstacles in the way of any young American from obtaining service on shipboard. But no sensible person will consent to having the safety of lives and property intrusted to the eyesight of one who is color blind. The eyes of the sailor are of as much importance as his hands on shipboard, and the nearer perfection his eyes the better for the safe navigation of the vessel. We fail to understand why this fact should be over-

looked by people who ought to stand up for having the sailor a sound man physically. A rotten plank in the hull is no more dangerous than a color blind sailor.”

Now it is said that vessel masters will be slow about running the new Hay lake channel when it is completed. At the Neebish there is a cut in solid rock 300 feet wide and almost two miles in length, through which the current runs at the rate of about six miles an hour. It is claimed that it will be necessary to crib this and other cuts, and the danger of obstructions from shifting quicksand in Hay lake is also held out as an obstacle to free navigation of the new channel. It will undoubtedly be found, however, that these disadvantages will be only temporary when the big project is completed, and boats will run the new channel just as certain as they will eventually navigate the Sault river by night when a complete system of range lights is in operation.

THE whaleback steamer Joseph L. Colby is now at Baltimore loading coal for Galveston, Tex., from which port she goes to Sigua, Cuba, to load iron ore for the Sigua Iron Company. She is to report at Sigua ready for loading not later than Oct. 1. This is an announcement of some importance, as it marks the beginning of operations by the American Steel Barge Company in a new and important Atlantic trade. All iron ore brought to this country from Cuba up to this time has been shipped by the Pennsylvania Steel Company and consumed by that company. The Sigua and the Spanish-American companies, in which leading stockholders of the barge company are interested, will both ship large quantities of the Cuban ore next year.

ABOUT \$8,000,000 was the original cost of the Erie canal begun in 1817 and opened to navigation in 1825, but New York state has since spent \$90,000,000 for its improvement and maintenance. Notwithstanding this heavy expenditure, it is figured that the actual income derived from the canal amounts to over \$123,000,000 leaving a clear profit of \$25,000,000. But the canal, once the great thoroughfare for the shippers of the entire west, is no longer capable of competing with railway advancement. Its radical enlargement is demanded and its history of earnings should alone be enough to encourage promoters of the big project.

One Indian Wasn't Enough.

The best posted and most experienced captains find their boats aground occasionally. Sometimes it is the fault of the mate on watch or the wheelman, or sometimes it is a mistake; captains being human are liable to make mistakes. All captains know this and there are few that do not sympathize with their fellows when they have bad luck. The following story is brought to mind by the grounding of a boat in the Sault river not long ago. The captain boasts of a drop of indian blood in his veins, just enough to enable him to be called a genuine American citizen. He was going up the Sault river one evening several years ago when an indian pilot hailed him from a canoe:

“Want a pilot, sir?”

The captain shook his head.

“River getting dark, plenty rocks. Joe keep you off them sir!”

“No” came the short answer, “one indian on a pilot house is enough.”

The captain has caused many a laugh with this story, and if that indian wasn't dead when the captain got on recently he certainly must have been more stolid than his tribe is accounted if he didn't drift down the river and again ask the captain if he wanted a pilot.

During August 44,356,000 feet of lumber, 8,400,000 shingles, 1,770,000 lath and 4,867 barrels of salt were shipped by water from Saginaw river.



Union seamen of Chicago have advanced wages for September from \$2 to \$2.50 a day.

Buffalo coal shipments in August were about half what they were during previous months of the present season.

Since being lengthened last winter the Wilson line steamer Spokane has been carrying 2,600 to 2,700 gross tons from Lake Superior. The vessel's speed is also increased materially, her last round trip to Ashland, including time of loading and unloading, being made in just seven days.

Capt. Fox of the steamer Frank E. Kirby saved a party of four from drowning while crossing Sandusky Bay on Wednesday of last week. The party were out sailing and had been overtaken by a squall, which capsized their boat. They were in the water nearly a half hour before being rescued.

The Murphy Wrecking Company's tug Johnson with pontoons in tow left Detroit for Green Bay Monday morning to continue the wrecking operations on the sunken steambarge Ogemaw. The chains have been attached to her for several weeks, but the pontoons have until now been in use on the Progress.

In the purchase of the steamer D. W. Powers and the schooner Constitution, a consort for the Powers, the Shores Lumber Company of Ashland shows an intention of going into the business of transporting its own products from the head of the lakes to Chicago. If the new steamer A. E. Shores, built for the same trade and now on her first trip, proves a good boat it is probable that she will also be purchased by the Shores company.

Sales of vessel property: Schooner Halsted, John G. Keith of Chicago to John Kelley of Saginaw, \$13,000; schooner Constitution, Charles Kohnert of Chicago to Shores Lumber Company of Ashland; steamer Powers, J. Charnley of Chicago to Shores Lumber Company of Ashland; schooner City of Chicago, Hitchcock & Holmes of Chicago to I. Stephenson Lumber Company, \$8,500; steamer Joys, Robert Winkler of Manistee to Christian Sheriffs of Milwaukee, one-third, \$5,500.

In reply to an inquiry, Assistant Secretary Spaulding sent a telegram Saturday to Hon. E. Meddaugh at Detroit, saying that goods in transit on a true bill of lading from one American port to another, transported partly by water by American vessels as required by law, and partly by land through Canada, transhipped either at American or Canadian ports, are not within the prohibition of the president's retaliatory proclamation. On the proof of the arrival of such goods in the United States, as provided in the circular of the department, the assistant secretary says tolls will not be exacted.

Capt. C. H. Wilson of the steamer Uganda did a gallant act Thursday in standing by the disabled steamer Coffinberry for several hours off port Hope and endeavoring to bring her into Sand Beach harbor. The Uganda was provided with a new 9-inch line; this the crew of the Uganda succeeded in getting to the Coffinberry, but as soon as a strain was put on it the tremendous surging of the heavy boats separated the line. Twice afterward the line was spliced and made fast to the Coffinberry, but each time parted as before, and Capt. Wilson was finally forced to abandon the attempt to save the unfortunate craft.—Free Press, Detroit.

Under pressure from a local smoke prevention organization, Chicago tug owners are being forced to the use of hard coal. Tug owners in other large ports may as well make up their minds that their trouble in this regard is coming later. The Chicago owners have tried all sorts of smoke consuming devices and have concluded that hard coal is the only solution of the question. O. B. Green, the Chicago dredging contractor, has given hard coal a trial and pronounces it a success, with the single exception of cost. Hard coal increases the cost of operating about \$125 a month for each tug, but no rearrangement of furnaces is necessary and there is no loss of speed.

Grain at Chicago and Duluth.

Stocks of grain at Chicago and Duluth on Monday, the 29th inst. were:

	Chicago.		Duluth.
	Wheat, bu.	Corn, bu.	All wheat, bu.
In store.....	6,202,694	4,303,427	1,749,327
Increase last week.....	577,714	205,610	47,524
Decrease last week .....	.....	.....	.....
Increase over same time last year	4,352,508	1,380,801	1,526,400

In addition to the above there is 1,625,526 bushels of oats, 152,977 bushels of rye and 43,788 bushels of barley in store in Chicago.

Work of the Ship Yards.

About the only announcement regarding new boats during the past week comes from West Bay City, where Capt. James Davidson is preparing timber for another new tow barge, to be built on his own account. The boat will be a duplicate of the three schooners now building at the Davidson yard. As all the steel yards are now well provided with work for the coming winter, it is not probable that more than two or three additional contracts for metal boats may be expected. The Chicago Ship Building Company is figuring for more work, however, and the smaller wooden yards in vicinity of Marine City and on Lake Michigan may be expected to lay several keels. The Illinois Steel Company is preparing to turn out material for the Chicago yard and will probably be ready for this work about Jan. 1.

The revenue cutter Calumet, to be built by the Union Dry Dock Company of Buffalo, will be a very fast small boat. This is the steamer that will be used by the collector of customs at Chicago for the purpose of boarding incoming vessels. She will be 94 feet 6 inches over all, 20 feet 6 inches moulded beam and 10 feet 3 inches moulded depth. Her engines will be fore and aft compound, the cylinders being 18½ and 32 inches by 26 inches stroke. She will have a Ward water tube boiler, 11 feet 6 inches in diameter.

Personal Mention.

William Willis, who is in charge of the engine building plant of F. W. Wheeler & Co. of West Bay City, was formerly with S. F. Hodge & Co. of Detroit.

Capt. Joseph Doyle, keeper of the life-saving station at Charlotte, is a candidate for the position of superintendent of the ninth life-saving district, made vacant by the death of Capt. D. P. Doblins.

Thomas Maytham of Buffalo will be honored by the new Kelderhouse-Drake syndicate steamer building at Chicago being named for him. The name has now been favorably connected with Buffalo's marine for many years.

Capt. Walter L. Fisk of the engineer corps, U. S. A., stationed at Duluth, has been ordered to Willet's point, N. Y., and Capt. Clinton B. Sears, from the engineering school at Willet's point, has been ordered to active duty, relieving Capt. Fisk.

Mr. M. A. Bradley, president of the Lake Carriers' Association has just made a trip to the head of Lake Superior. He gave some attention to the development of the Mesaba iron range and is of the opinion that the claims of abundance of ore in the new district have been taken too lightly by managers of the older companies.

The departure of President Goodrich of the Goodrich Transportation Company for a sojourn of four months duration in China and Japan renders certain the belief that the owners of the elegant Lake Michigan passenger steamer Virginia have abandoned the idea of building during the winter another costly passenger boat. If a new steamer was to be built Mr. Goodrich would undoubtedly have remained at home to look after the details.

Capt. A. W. Reed, who died in Cleveland Monday after a short illness, was among the first steamboat masters on the lakes, and has always commanded the highest respect from associates. He was fifty-eight years of age. His home was at Sheridan, N. Y. Capt. Reed was in command of the steamer Australasia, when that boat was purchased by James Corrigan of Cleveland six years ago, and has since been in charge of the Caledonia and Italia, two of the best steamers of the Corrigan fleet. He leaves a widow and three sons, D. A. Reed, W. A. Reed and Capt. A. H. Reed.

Construction of Metal Ships.

A. C. A. Holzaphel of London has applied for a patent in Great Britain on the construction of metal ships. He says in his application: "When building ships or other structures of plates flanged on all four sides, it is necessary, in order to obtain the greatest possible longitudinal strength, not to place all the transverse butt-joints in a line, as by so doing no continuity of strength would be obtained. According to this invention the transverse butt-joints of the second line of plating are placed against the middle of each plate of the first line of plating, whereby the flanges of the first line of plating give continuity of strength to the butts in the second line of plating. The third line of plating is placed in the same relation to the second line, as the second line bears to the first, and so on. By this arrangement the butts of the first, third and fifth lines of plating are transversely in a line, and the second, fourth and sixth, and so on have their butts also in a transverse line. By this arrangement, however, the transverse strength of the structure would be insufficient, so in order to compensate for this one flange of each plate is made deeper than the others, and transverse bars or angle irons are riveted to them. The arrangement can be altered so as to have the first, fourth, and seventh, the second, fifth, and eighth, or the third, sixth, and ninth butts in a line, whereby three transverse angle bars would be used to each length of plating." There are five claims, which include the following: Constructing ships and other plated structures of flanged plates having one transverse flange deeper than the other flanges, such plates being arranged in longitudinal strakes, in such manner that the transverse joints of the plates in the one strake are out of line with the transverse joints of other strakes, so that while increased longitudinal strength is obtained, the deep transverse flanges of the plates serve for the attachment of transverse ties or ribs for increasing the transverse strength.

Notice is given that the color of the tower, dwelling and fog signal house at Waugoshance light station, northerly end of Lake Michigan, has been changed from a dull brown to a bright red and white, painted in alternate horizontal bands in such a way that the band immediately under the lantern gallery will be white, and that lower down the band of red shall cover the roof of the dwelling, leaving dwelling, tower and fog signal house below the lower edge of the roof white.

In General.

Why do many newspaper writers insist on calling a fire boat a fire tug? A tug is a steam vessel used to tow ships.

An immense yacht harbor at Chicago for the reception and entertainment of foreign visitors who will come to the fair in yachts next year will be constructed at a very heavy cost.

A. Sewell & Co. of Bath, Me., on Monday last launched a wooden schooner of 3,539.03 gross and 3,400.43 net tons. Her length is 311.2 feet, breadth 49.2 feet, depth 29.2 feet and height under spar deck 9 feet. Her spars are of Oregon pine. Her foremasts are each 90 feet in length and 38 inches in diameter. The crew will number about forty. She is designed for the California trade.

Chief Engineer George Sewell, U. S. navy, is developing a boiler of the tubular type, which, if the preliminary studies are borne out by actual practice, bids fair to make a stir in the engineering world in respect to pressure, weight and general efficiency. Since his retirement, Mr. Sewell has lived mainly at No. 76 West Clinton street, East Orange, N. J.—Chesapeake Marine Gazette.

The Fall River Steamboat Company will construct a show case to occupy 128 square feet in the marine division of the transportation exhibits, world's fair, in which they will show an elaborate model and drawings of the Puritan, and also a model and drawing of their freight steamer City of Taunton. The purpose of these exhibits is to show the excellence of the size, speed, elegance and capacity of these boats.

The Reading route to Buffalo over the Lehigh Valley lines opens Sept. 1, after which freight now sent over the Erie tracks will be kept upon the Lehigh Valley lines. Additional passenger trains will be put on the route within a short time. The arrangement between the Reading and Great Northern, provides that the eleven steamers owned by the Lehigh Valley and the six steamers controlled by the Great Northern, together with two additional steamers under construction, will be put under one management. The importance of this steamer line is indicated by the fact that the Lehigh Valley boats have furnished the railroad with 450 cars of freight in one day.—Wall Street News.

W. F. COBB,
VICE-PRESIDENT.

W. I. BABCOCK,
MANAGER.

O. R. SINCLAIR,
SECRETARY.

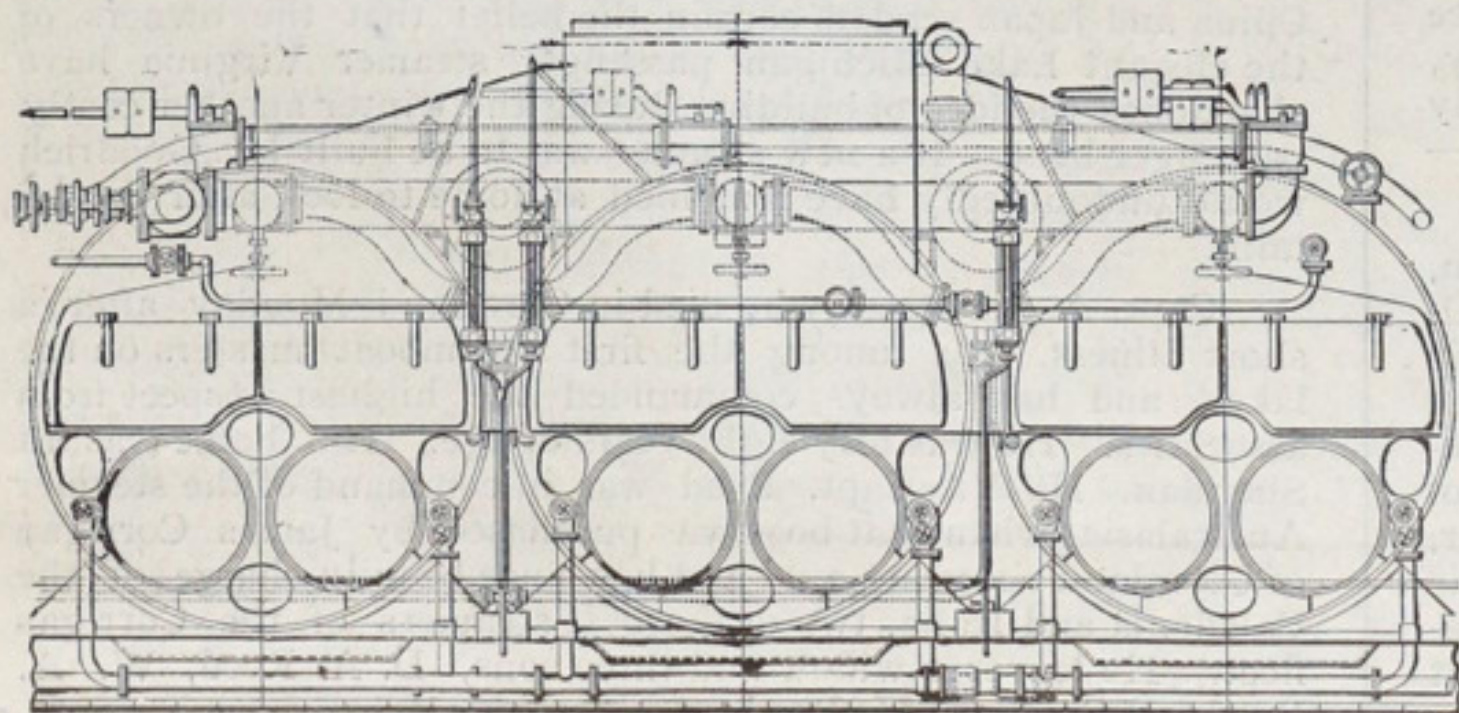
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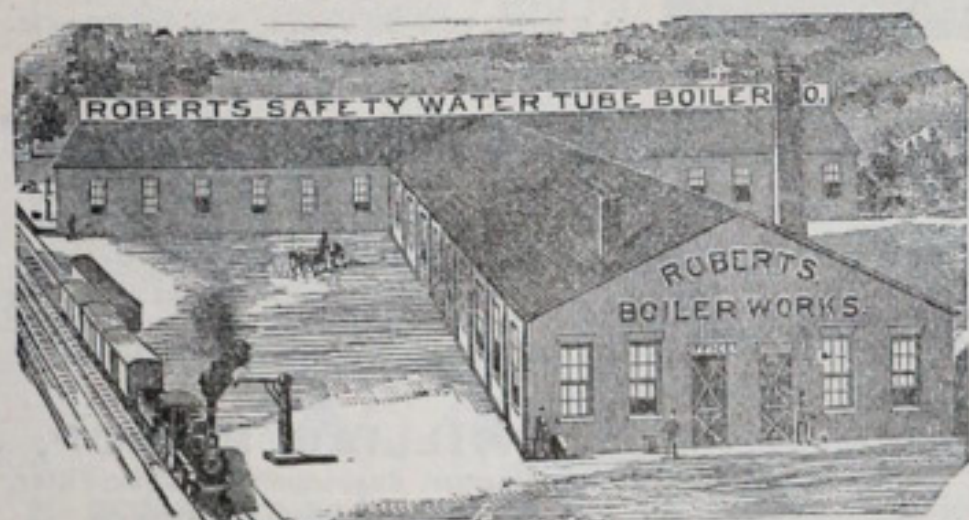
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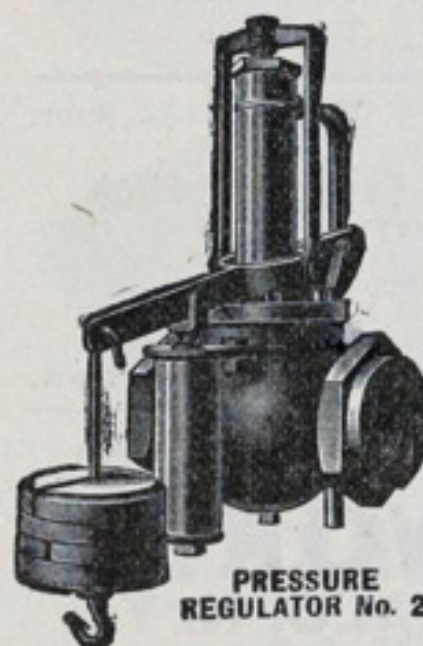
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Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind or wishing to purchase vessels, are invited to take advantage of the same offer. Employers in need of professional men or men who want positions may avail themselves of the opportunities offered. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 516 Perry-Payne Building, Cleveland, O.

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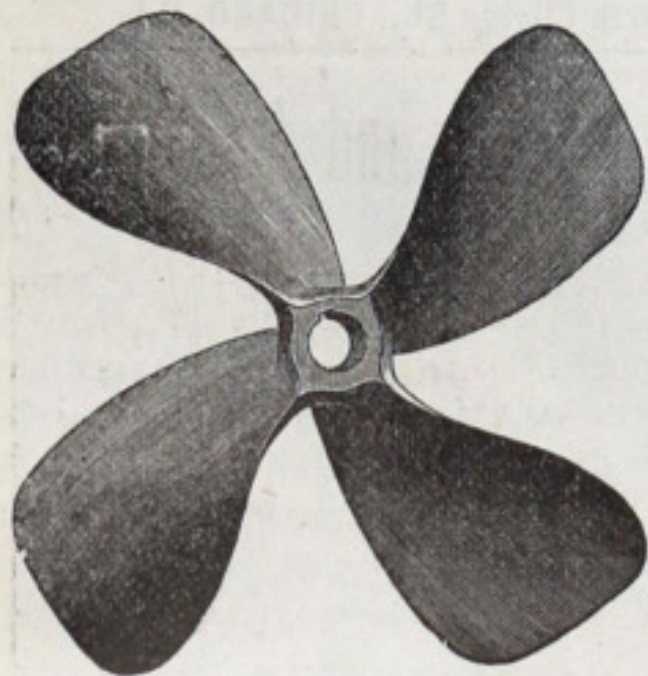
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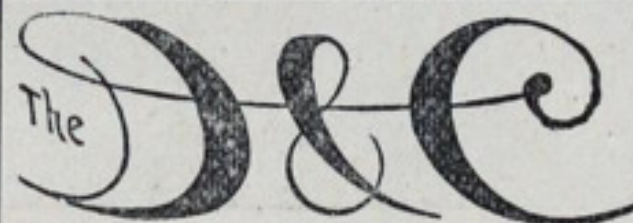
PRICES QUOTED ON APPLICATION

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for blasting and dredging 72,000 cubic yards, more or less, of hard-pan and boulders from Ogdensburg Harbor, N. Y., will be received at this office until 10 A. M., Sept. 9, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office.

U. S. ENGINEER OFFICE, 34 WEST CONGRESS ST., Detroit Mich., August 17, 1892. Sealed proposals for: 1, dredging Black River, at Port Huron, Michigan; 2, dredging mouth of Black River, Port Huron, Michigan, will be received at this office until 2 p. m. September 16, 1892, and then publicly opened. Specifications, blank forms and all available information will be furnished on application to this office. O. M. POE, Colonel, Corps of Engineers, etc. Sept. 8.

U. S. ENGINEER OFFICE, DETROIT, MICH., August 16, 1892. Sealed proposals for: 1, dredging bar at mouth of Saginaw River, Mich.; 2, dredging Essexville bar near mouth of Saginaw River; 3, dredging west channel along West Bay City, Mich.; 4, dredging channel of Saginaw River above Bay City, Mich., will be received at this office until 2 p. m., September 15, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. O. M. POE, Colonel Corps of Engineers, etc. Sept. 8.

U. S. ENGINEER OFFICE, 366 MILWAUKEE KEE ST., Milwaukee Wis., August 12, 1892. Proposals, Harbor Improvements, Lake Michigan. Sealed proposals for: Green Bay Harbor, Wis., Dredging 120,000 cubic yards, more or less. Sheboygan Harbor, Wis., Pier Extension 200 feet, with Superstructure. Port Washington Harbor, Wis., Pier Extension 200 feet, with Superstructure. Harbor of Refuge Milwaukee, Wis., Extending Breakwater 500 feet, and 300 feet of superstructure. Milwaukee Harbor, Wis., Cutting down and rebuilding 200 feet of Superstructure; repairing 250 feet of piers, and taking out and replacing with new 264 protection piles. Racine Harbor, Wis., Pier Extension 250 feet, and repairs. Kenosha Harbor, Wis., Pier Extension 150 feet. Waukegan Harbor, Ill., Pile Pier, 376 feet. Will be received at this office until 12 o'clock, noon, Monday, September 12, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. JAMES F. GREGORY, Major of Engineers, U. S. A. Sept. 8.



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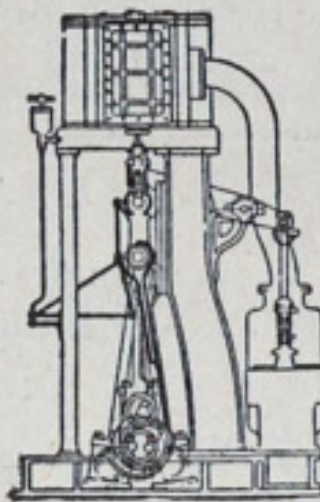
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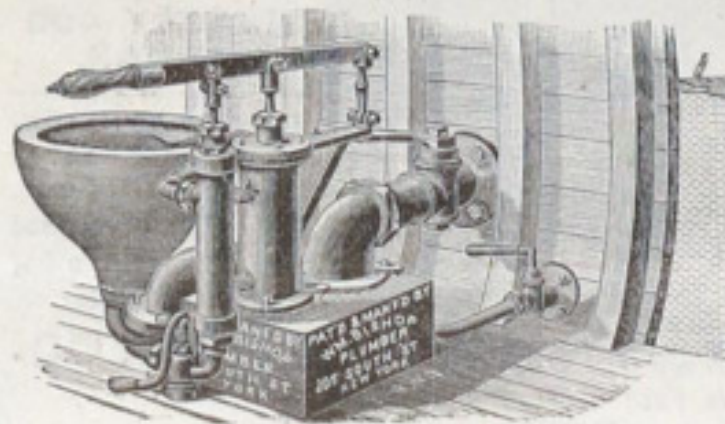
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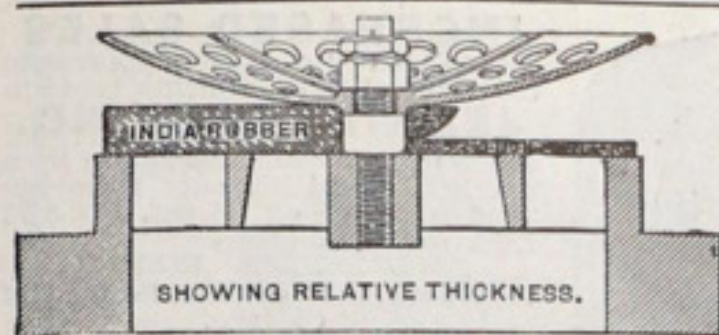
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UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for blasting and removing 2,000 cubic yards, more or less, of slate rock from a ledge near the State Reform School Dock in Otter Creek, Vt., will be received at this office until 10 A. M., Sept. 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. 11-18-1.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for dredging 21,000 cubic yards, more or less, of clay, sand, mud, and bowlders, from Great Chazy River, N. Y., will be received at this office, until 10 A. M., Sept. 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. 11-18-1.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for dredging 92,000 cubic yards, more or less, from the Narrows of Lake Champlain, N. Y., will be received at this office until 10 A. M., Sept. 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. 11-18-1.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for furnishing 7,000 cubic yards of rubble stone; 2,000 cubic yards of large stone, 1 to 3 tons weight, and constructing 135 linear feet of extension to breakwater at Rouse Point, N. Y., will be received at this office until 10 A. M., Sept. 9, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office.

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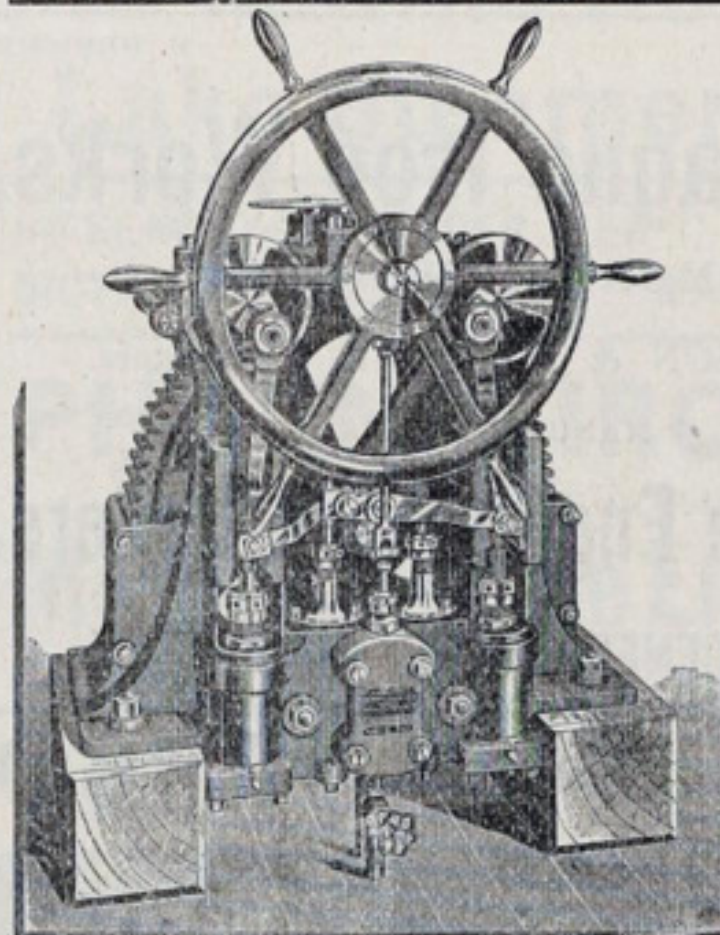
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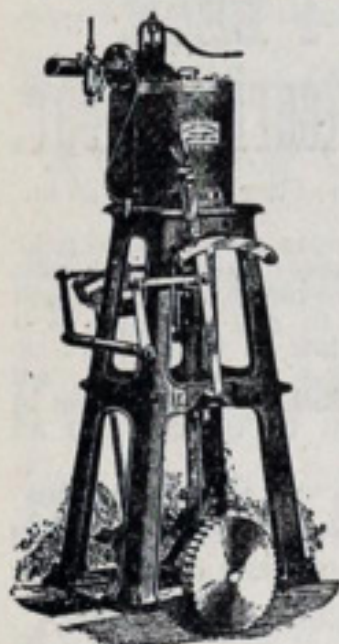
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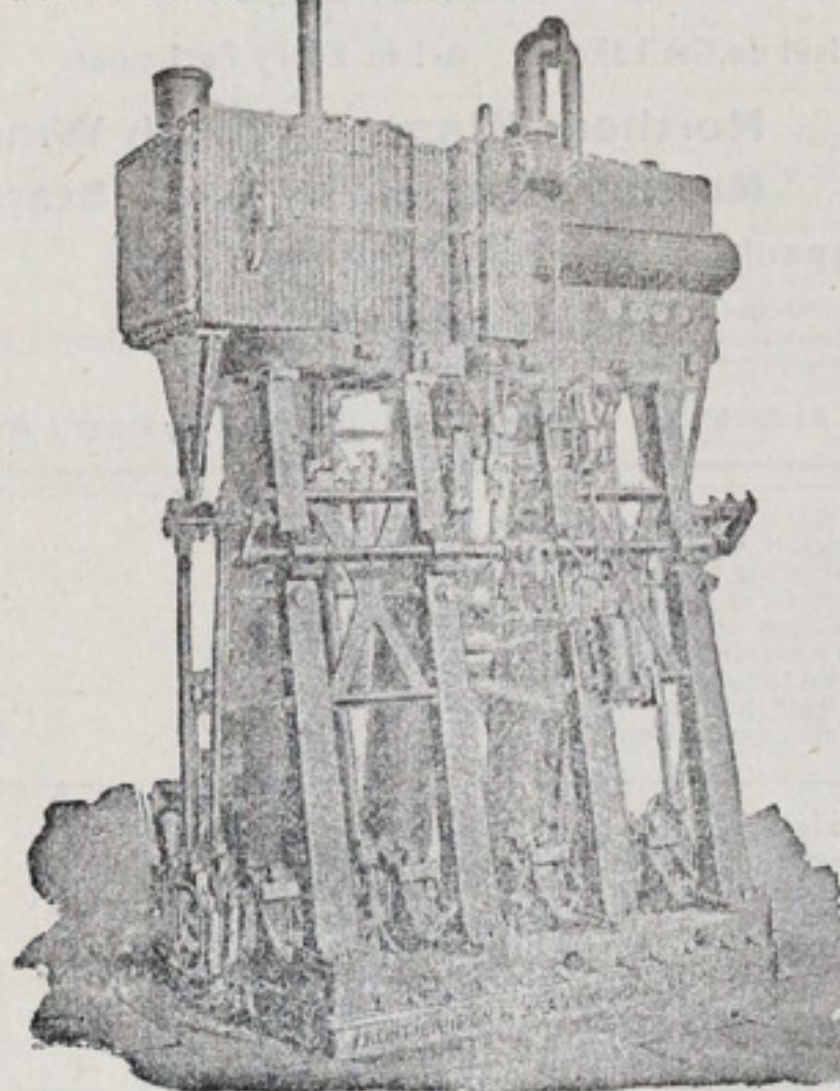
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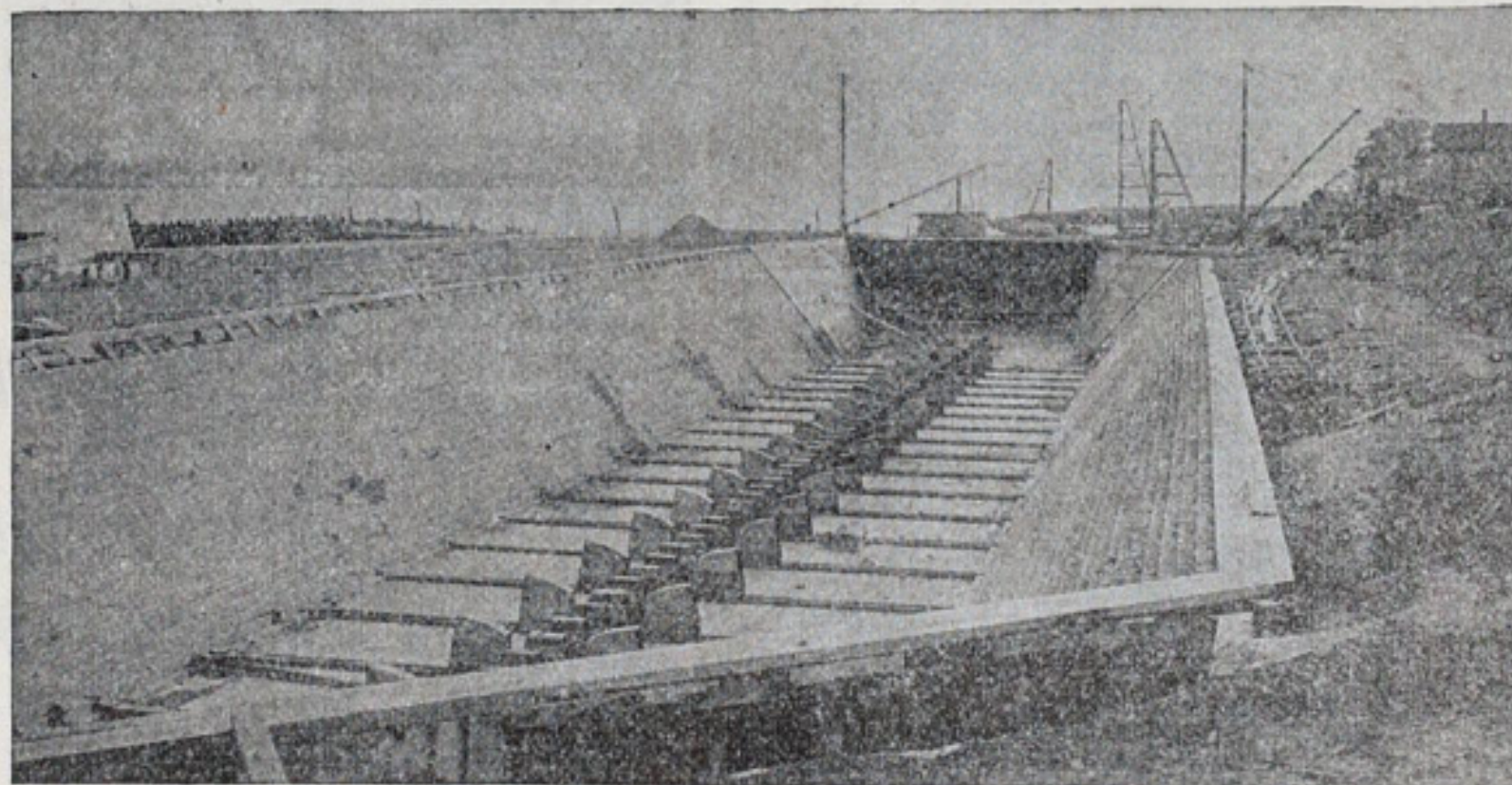
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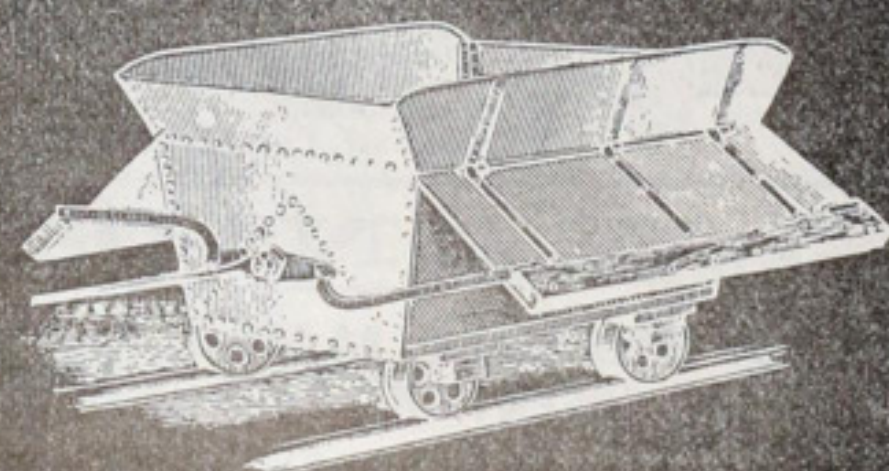
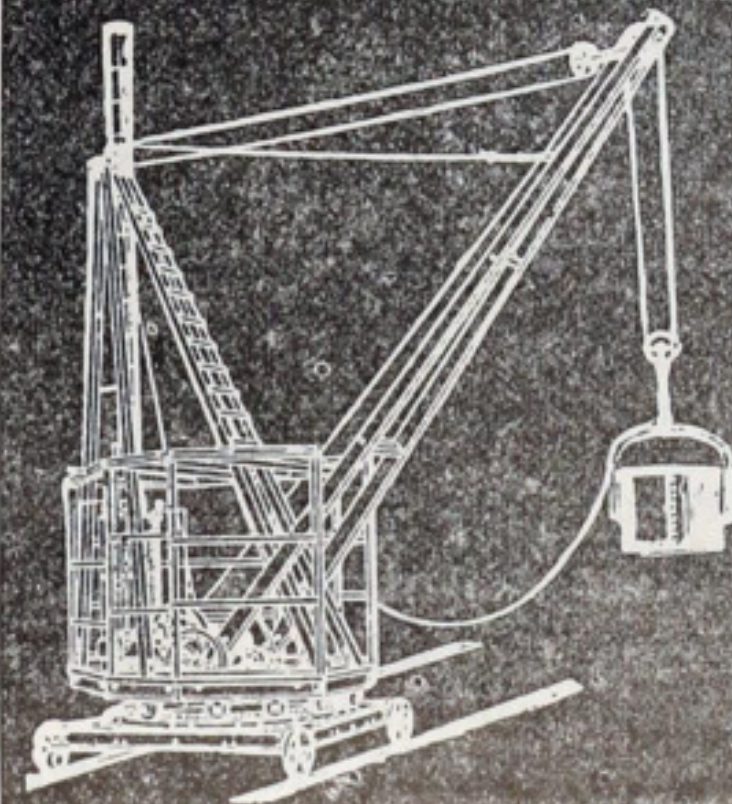
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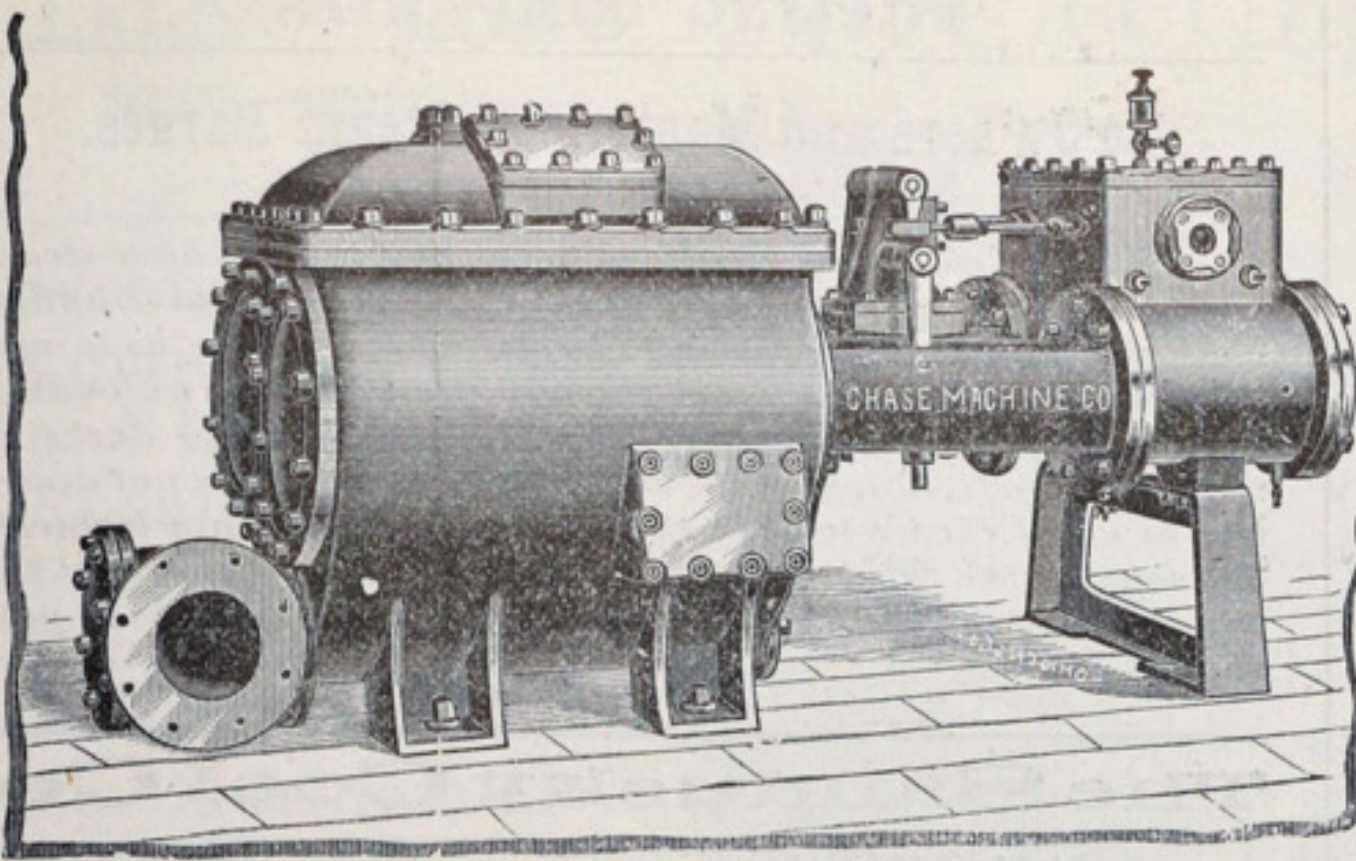
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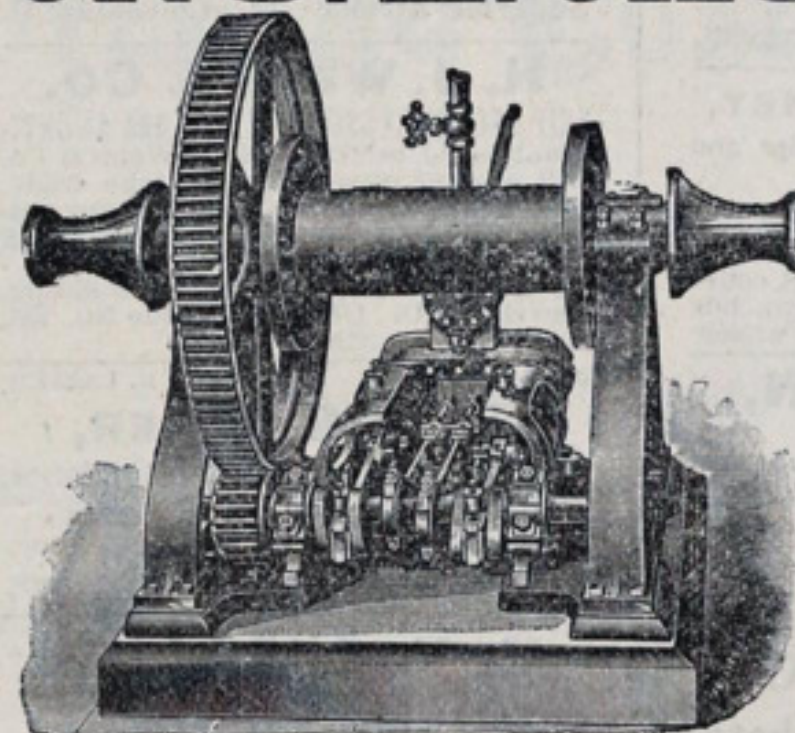
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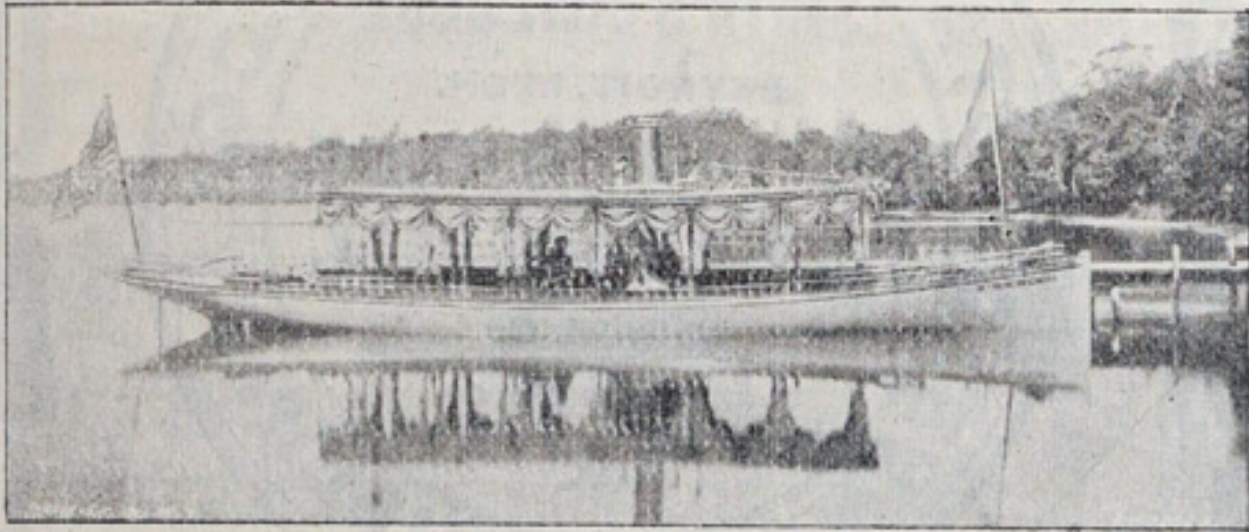
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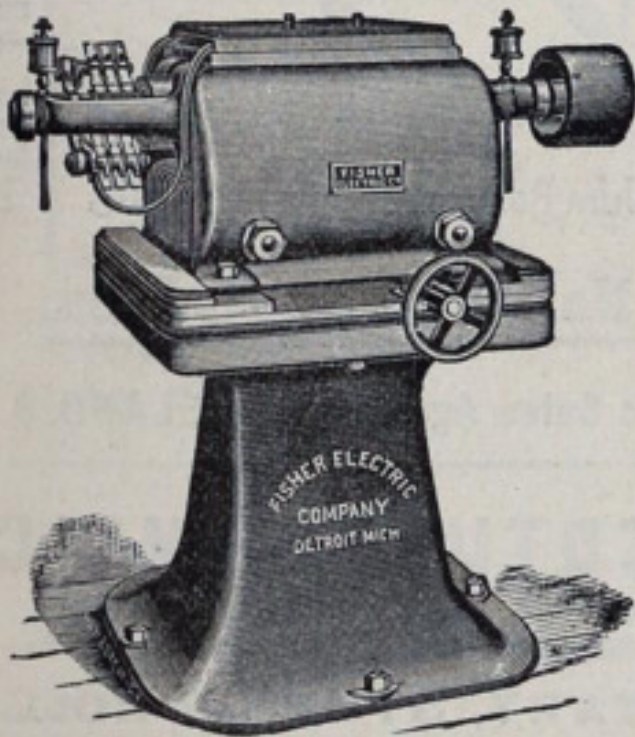
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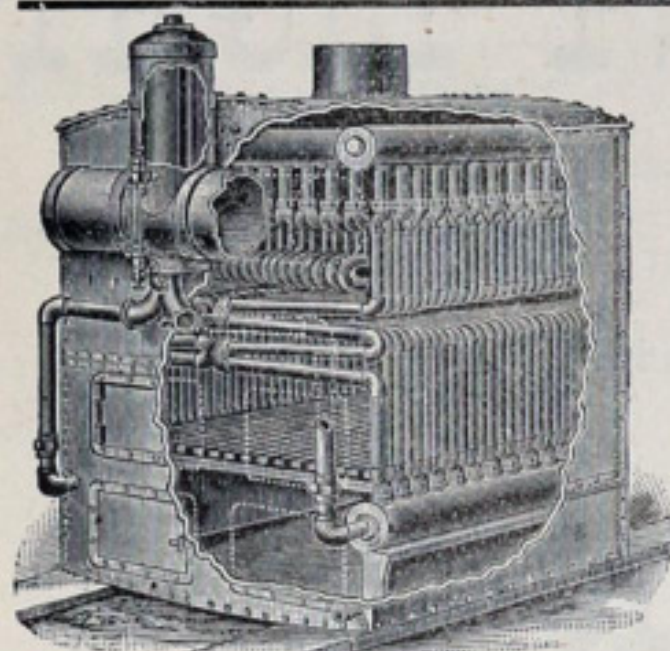
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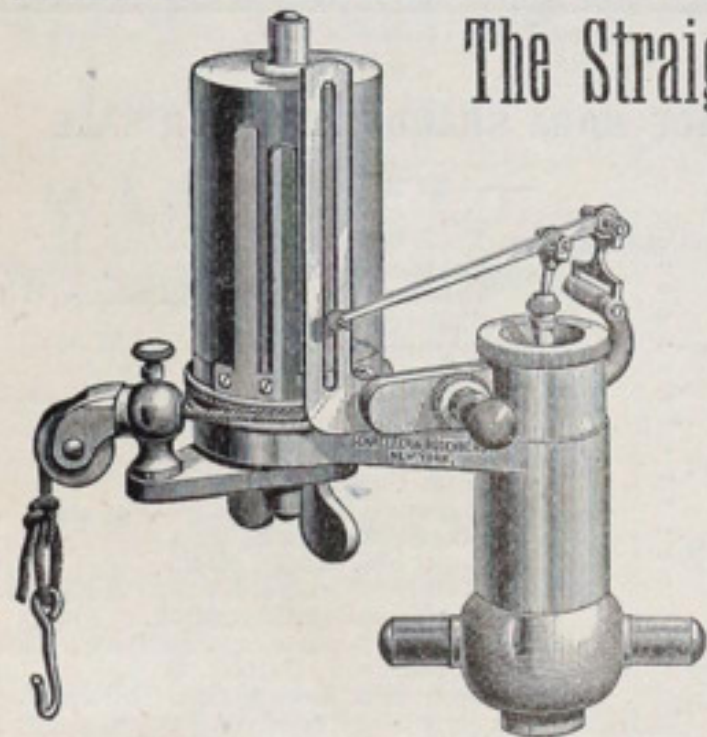
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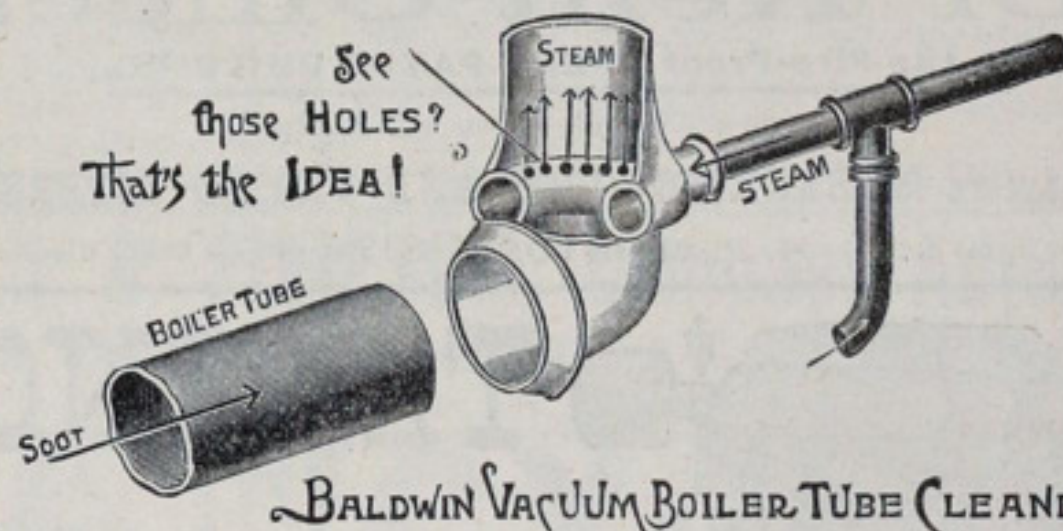
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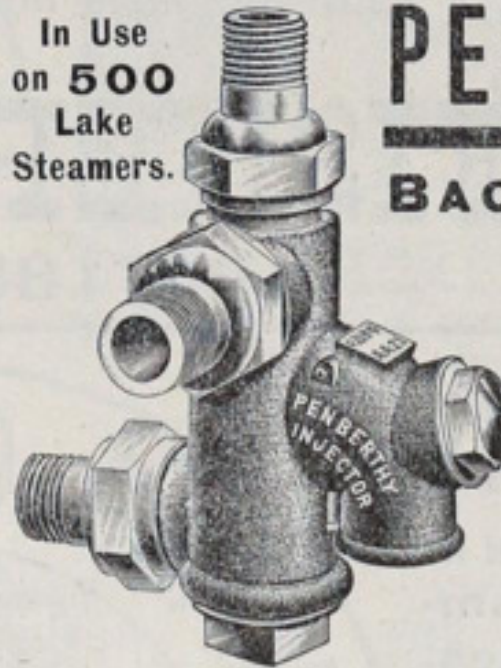


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